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EXAMINER

BRINEY III, WALTER F

ART UNIT	PAPER NUMBER
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2615

DATE MAILED: 12/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/975,995

Applicant(s)

BRADY ET AL.

Examiner

Walter F. Briney III

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 September 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,11,12,19,25,26,29,36,37,40 and 76-104 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,11,12,19,25,26,29,37,40 and 76-104 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 October 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the “hermetically sealed housings” of claim 89 with components of said modulating means and said demodulating means being mounted directly to said hermetically sealed housings must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Double Patenting

The following forms the basis for all nonstatutory obviousness-type rejections set forth in this Office action:

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

1. **Claims 1, 2, 11, 12, 19, 25, 26, 29, 36, 37, 40, 76-83, 86-88, 90-94 and 97-102 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-10 of Brady et al. (U.S. Patent 6,442,374) in view of Kumar et al. (US Patent 5,793,253).**

Claim 1 is limited to an "apparatus for full duplex wireless communication of information." Likewise, Brady recites in claim 1 "a transceiver for wireless communication of information." The claimed "means for performing at least one of modulating and demodulating" corresponds to Brady's "modulator for transmitting modulated information."

It is noted that the transmitted signals of Brady have a "power output of 0.5W or greater," which begs the question, "where did that 0.5W come from." Clearly, none of

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Brady's ten claims refer to the claimed "plurality of 90-degree hybrids arranged in tandem to output a plurality of amplification channels," however, it is noted that claim 3 of Brady recites, "said modulator further includes plural, parallel amplification channels." This means that Brady does "boost" the power of the transmitted signals with power output of 0.5W or greater. Despite the fact that Brady fails to disclose the claimed hybrids, which will be treated below, the modulator of Brady performs "boosting power using...a plurality of amplification channels."

Moreover, Brady recites in claim 1, "an antenna for transmitting said information wirelessly." In claims 4 and 5, the antenna is shown to be a dual polarization antenna for transmission and reception using different polarizations. Therefore, the antenna corresponds to the claimed "means for information transmission/reception."

Returning the discussion to the claimed 90-degree hybrids, it is posited that Brady's failure to claim the particular power amplification means leads one of ordinary skill in the art to choose one of the previously known types of power amplification means. For example, Kumar discloses a high power solid state microwave transmitter designed to match a low power output oscillator to two stages of amplification, providing high power output and low phase pushing. See column 1, lines 61-65. It is noted that the amplifier of Kumar includes the recited "plurality of 90-degree hybrids 65a, 65b and 65c arranged in tandem to output a plurality of amplification channels 69b1, 69b2, 69c1 and 69c2."

It would have been obvious to one of ordinary skill in the art at the time of the invention to embody the transceiver claimed by Brady with the amplifier of Kumar since

Brady fails to claim the particular amplifier and because Kumar provides high power output with low phase pushing, advantageously rolled up in a solid state package.

Claim 2 is limited to an "apparatus according to claim 1," as covered by Brady in view of Kumar. The modulator of Brady inherently has an "input means" and a "data processing means," and, according to claim 3 and Kumar, a "power output means." Therefore, Brady in view of Kumar makes obvious all limitations of the claim.

Claim 11 is limited to an "apparatus according to claim 1," as covered by Brady in view of Kumar. Claim 4 of Brady clearly discloses the separate "transmission and reception antenna separated by a distance" recited herein. Therefore, Brady in view of Kumar makes obvious all limitations of the claim.

Claim 12 is limited to an "apparatus according to claim 1," as covered by Brady in view of Kumar. Claim 5 of Brady clearly discloses the single antenna having a dual polarization capability for transmitting information with a first polarization, and for receiving information with a second polarization." Therefore, Brady in view of Kumar makes obvious all limitations of the claim.

Claims 76 and 77 are limited to an "apparatus according to claim 11," as covered by Brady in view of Kumar. Claim 2 of Brady clearly discloses that the modulator of claim 1 receives an input data modulated on an intermediate frequency of 2-3 GHz and then modulates said input onto a carrier of 18 GHz as recited in claims 76 and 77. Therefore, Brady in view of Kumar makes obvious all limitations of the claim.

Claim 78 is limited to an "apparatus according to claim 76," as covered by Brady in view of Kumar. The recited "plural, parallel amplification channels" of this claim are

disclosed in claim 3 of Brady, and are also taught by Kumar. Figure 7, elements 69b1, 69b2, 69c1 and 69c2. Therefore, Brady in view of Kumar makes obvious all limitations of the claim.

Claim 79 is limited to an “apparatus according to claim 78,” as covered by Brady in view of Kumar. While Brady fails to disclose the coupler recited in this claim, Kumar makes up for this deficiency by providing coupler 65a, for instance. Therefore, Brady in view of Kumar makes obvious all limitations of the claim.

Claim 80 is limited to an “apparatus according to claim 78,” as covered by Brady in view of Kumar. Again, while Brady fails to disclose the three couplers recited in this claim, Kumar makes up for this deficiency by providing couplers 65a, 65b and 65c, for instance. Moreover, Brady discloses in claim 1 outputting signals with the claimed 0.5W of output power. Therefore, Brady in view of Kumar makes obvious all limitations of the claim.

Claim 81 is limited to an “apparatus according to claim 78,” as covered by Brady in view of Kumar. Not surprisingly, Brady’s failure to claim the particular power amplification means leads to a failure to claim the claimed “at least one device for combining output from each of said plural, parallel amplification channels into a single output channel.” However, Kumar makes up for this deficiency by providing combiners 69a, 69b and 69c, for instance. Therefore, Brady in view of Kumar makes obvious all limitations of the claim.

Claim 82 is limited to an “apparatus according to claim 79,” as covered by Brady in view of Kumar. The couplers of Kumar are quadrature, or 90-degree, hybrids. See

column 5, lines 50-53. Therefore, Brady in view of Kumar makes obvious all limitations of the claim.

Claim 83 is limited to an "apparatus according to claim 79," as covered by Brady in view of Kumar. Not surprisingly, Brady's failure to claim the particular power amplification means leads to a failure to claim the claimed "at least one coupler for combining output from each of said plural, parallel amplification channels into a single output channel." However, Kumar makes up for this deficiency by providing combiners 69a, 69b and 69c, for instance. Therefore, Brady in view of Kumar makes obvious all limitations of the claim.

Claim 86 is limited to an "apparatus according to claim 11," as covered by Brady in view of Kumar. Brady discloses the recited demodulator in claims 6 and 8. It is inherent that a demodulator has "a data input means" and a "data processing means," otherwise no data could be read and then demodulated. Therefore, Brady in view of Kumar makes obvious all limitations of the claim.

Claim 87 is limited to an "apparatus according to claim 11," as covered by Brady in view of Kumar. Brady discloses the recited demodulator in claims 6 and 8. It is inherent that a demodulator has "a data input means" and a "data processing means," otherwise no data could be read and then demodulated. Therefore, Brady in view of Kumar makes obvious all limitations of the claim.

Claim 88 is limited to an "apparatus according to claim 87," as covered by Brady in view of Kumar. As disclosed in claim 8 of Brady, a single local oscillator is provided

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for modulating and demodulating. Therefore, Brady in view of Kumar makes obvious all limitations of the claim.

Claims 19, 25, 26 and 90-94 recite methods that are inherently, respectively performed by the apparatuses of claims 1, 11, 12, 76-78, 80 and 81, and are rejected for the same reasons.

Claims 29, 36, 37, 40 and 97-102 recite transceivers that are essentially, respectively the same as the apparatuses of claims 1, 11, 12, 86, 76/77, 78, 81, 80, 79 and 82, and are rejected for the same reasons.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. **Claim 1, 2, 11, 12, 19, 25, 26, 29, 36, 37, 40, 76-83, 86-88, 90-94 and 97-102 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dent (US Patent 5,619,503) in view of Kumar et al. (US Patent 5,793,253).**

Claim 1 is limited to an "apparatus for full duplex wireless communication of information." Likewise, Dent discloses a cellular/satellite communications system, wherein hub-to-satellite and satellite-to-hub communication takes place over in a full-duplex manner through frequency division multiplexing, where transmit and receive

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signals may be received on separate antennas or through a single antenna and split with a duplexing filter. See column 12, line 55, through column 13, line 6.

Attention is drawn to figures 6, 7 and 8a. Figure 6 illustrates the aforementioned hub 400 and satellite 410 used to communicate ultimately with a plurality of mobile stations 420. Figures 7 and 8a respectively illustrate the transmitter and receiver of the satellite. See column 4, lines 29-32. Details of the transmitter's modulator bank 430, combiner, TWT 450 and antenna 460 (misabeled as 480) are provided in figure 10. See column 11, line 64, through column 12, line 31. Referring to the claim language, the modulator bank 430 corresponds to "means for performing at least one of modulating and demodulating information signals." The modulated signals from 430 are combined and amplified by a TWT 450 (traveling wave tube amplifier) to boost their power.

It is evident that the TWT does not inherently comprise a "plurality of 90-degree hybrids arranged in tandem to output a plurality of amplification channels," however, this deficiency will later be shown to be overcome by an obvious modification to Dent.

Moreover, Dent discloses an antenna 460 for coherent signal transmission. The antenna is described in figure 10 as a dual-circular polarized horn antenna 1009. See column 12, lines 24-27. As described in column 12, lines 55-63, both the satellite and hub communicate in essentially the same manner, just using a different set of k-band frequencies. This frequency division provides one form of duplex signal separation. A second form of separation/isolation is provided in that signals are transmitted from both the hub and satellite using opposite polarities. Specifically, both left and right-handed

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signals are transmitted from the hub and satellite such that the left and right-handed signals crossing paths will not interact. In this way, the dual-polarized horn antenna(e) correspond to "means for information transmission/reception, said information transmission/reception means providing for information transmission using a first polarization and for information reception using a second polarization to thereby isolate information transmission from information reception in full duplex communication. From the perspective of the satellite, per se, some reception and transmission signals share the same polarization orientation; others do not. Since the claim does not specify that all transmission and reception signals have to be isolated through polarization, Dent reasonably anticipates this limitation. Moreover, isolation is still provided on the basis of frequency division between transmission and reception signals.

The above interpretation of the claim notwithstanding, it is noted that because the statutory class of claim 1 is an "apparatus," functional limitations such as "providing for information transmission using a first polarization and for information reception using a second polarization to thereby isolate information transmission from information reception in full duplex communication" necessitate that the prior art apparatus only be capable of performing those functions. In this case, the apparatus of Dent clearly is capable of isolating solely on the basis of polarization in the case that beams from the satellite happen to only route through TWT 1003 (as may occur if a zero voltage signal is present on certain beams or only one beam is active), and beams from the hub happen to only route through TWT 1007. In this way, the apparatus of Dent is inherently capable of performing the claimed function.

Returning to the function of boosting power, it is restated here that TWT amplifiers, such as 1003 and 1007, do not inherently contain a plurality of 90-degree hybrids arranged in tandem. However, Kumar has shown that the use of TWT amplifiers results in severe power limitations. See column 1, lines 31-47. In solution, Kumar developed a solid state transmitter matched to a low power output oscillator and providing two-stages of power amplification. See column 1, lines 61-65. The most germane aspects of Kumar's amplifier are seen in figures 5 and 7, where an input signal is power divided 41, provided to a plurality of power amplifiers 43A-43N and combined 45 to produce a high power output. See column 4, lines 47-64. As seen in figure 7, which embodies amplifiers 43A-43N, a plurality of quadrature (90-degree) hybrids 65a, 65b and 65c are arranged in tandem to produce a plurality of amplification channels labeled 69b1, 69b2, 69c1 and 69c2. See column 5, lines 50-53.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to replace the TWT amplifiers 1003 and 1007 of Dent with the high power solid state microwave transmitter of Kumar to overcome the aforesaid known disadvantages of TWT amplifiers.

Claim 2 is limited to an "apparatus according to claim 1," as covered by Dent in view of Kumar. Figure 10 clearly illustrates "modulating means" comprising "input means" that allow a video signal from each antenna element to arrive at "data processing means" 1000 and 1001, which output to power output means 1003. Therefore, Dent in view of Kumar makes obvious all limitations of the claim.

Claim 11 is limited to an "apparatus according to claim 1," as covered by Dent in view of Kumar. Dent discloses the use of two antennae inherently separated by a distance. One antenna is used for reception while the other is used for transmission. See column 12, lines 64-65. Therefore, Dent in view of Kumar makes obvious all limitations of the claim.

Claim 12 is limited to an "apparatus according to claim 1," as covered by Dent in view of Kumar. In alternative to the use of two antennae, Dent discloses the use of a single antenna. See column 12, lines 65-67. Therefore, Dent in view of Kumar makes obvious all limitations of the claim.

Claim 76 is limited to an "apparatus according to claim 11," as covered by Dent in view of Kumar. Although figure 10 illustrates direct modulation of a 20GHz VCO, Dent discloses modulating video signals first modulated to 2-3GHz to the greater 20GHz band. See column 12, lines 44-54. Therefore, Dent in view of Kumar makes obvious all limitations of the claim.

Claim 77 is limited to an "apparatus according to claim 76," as covered by Dent in view of Kumar. In performing the aforementioned multiple step modulation, Dent uses an 18GHz local oscillator signal for modulating a sideband up to 20GHz. See column 12, lines 51-54. Therefore, Dent in view of Kumar makes obvious all limitations of the claim.

Claims 78-83 are limited to "apparatus according to claim 76," as covered by Dent in view of Kumar. As seen in figure 7 of Kumar, a plurality of parallel amplification channels are provided, namely 69b1, 69b2, 69c1 and 69c2. The plural of channels are

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provided in part by "coupler" 65a (claim 79). In fact, three couplers 65a, 65b and 65c are used to provide four channels with an output power ranging up to 125W (claim 80). See column 4, lines 56-59. The channels are combined using combiners 69a, 69b and 69c (claims 81 and 83), where each is a quadrature/90-degree hybrid (claim 82). See column 5, lines 50-53. Therefore, Dent in view of Kumar makes obvious all limitations of the claims.

Claims 86 and 87 are limited to an "apparatus according to claim 11," as covered by Dent in view of Kumar. Figure 8b illustrates components of the receiver bank 340 seen in figure 8a. In particular, a down converter 830/"demodulating means" is provided inherently provided with input means to receive the output from component 820 and data processing means for performing down conversion/demodulation. Another down converter 440 is provided in figure 7. Therefore, Dent in view of Kumar makes obvious all limitations of the claim.

Claim 88 is limited to an "apparatus according to claim 87," as covered by Dent in view of Kumar. A local oscillator provides a demodulating signal to bank 440 of figure 7, units 830 of figure 8b, and, although not shown, an 18GHz signal to the transmitter of figure 10. Therefore, Dent in view of Kumar makes obvious all limitations of the claim.

Claims 19, 25, 26 and 90-94 recite methods that are inherently, respectively performed by the apparatuses of claims 1, 11, 12, 76-78, 80 and 81, and are rejected for the same reasons.

Claims 29, 36, 37, 40 and 97-102 recite transceivers that are essentially, respectively the same as the apparatuses of claims 1, 11, 12, 86, 76/77, 78, 81, 80, 79 and 82, and are rejected for the same reasons.

3. **Claims 84, 85, 95, 96, 103 and 104 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dent in view of Kumar and further in view of Fenter (US Patent 4,459,651).**

Claims 84 and 85 are limited to an "apparatus according to claim 11," as covered by Dent in view of Kumar. Apropos the rejections of these claims presented in the Non-Final Office Action filed 15 June 2006, Dent does not disclose regulating power, or for that matter any manner concerning power consumption. As power is a necessity for any of Dent's products to perform, it is incumbent upon one of ordinary skill in the art to select some type of power feeding mechanism. As such, the regulator of Fenter serves to provide consumable power in a controlled manner such that power is provided with minimal circuit overhead, thereby reducing weight and size while increasing efficiency. See column 2, lines 1-16.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide power in the manner taught by Fenter to realize the aforesaid advantages in addition to the inherent need to provide power.

Claims 95 and 96 recite methods that are inherently, respectively performed by the apparatuses of claims 84 and 85, and are rejected for the same reasons.

Claims 103 and 104 recite transceivers that are essentially, respectively the same as the apparatuses of claims 84 and 85, and are rejected for the same reasons.

4. **Claim 89 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dent in view of Kumar and further in view of Bhame et al. (US Patent 5,911,117).**

Claim 89 is limited to an "apparatus according to claim 87," as covered by Dent in view of Kumar. Despite applicant's lack of depiction, it is noted that Dent fails to suggest suitable housings for the transceiver components used in both the satellite 410 and hub 400.

Referring to Bhame, figure 3, column 9, lines 12-17, and column 13, lines 37-43, depict transceiver components 31 as well as radio equipment for sending and receiving radio signals. These components correspond to "modulating means and said demodulating means." Bhame further teaches that said transceiver components, and radio equipment are enclosed within housing 33, which corresponds to the "hermitically sealed housing".

It would have been obvious for one of ordinary skill in the art at the time of the invention to house the transceiver components of Dent, including the modulating and demodulating means, in the manner taught by Bhame for the purpose of providing a protective housing for the radio communication components.

Response to Arguments

Applicant's arguments filed 11 September 2006 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

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Because the new grounds of rejection presented in this Office Action were not necessitated by the applicant's amendment, this action is **NON-FINAL**.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Walter F. Briney III whose telephone number is 571-272-7513. The examiner can normally be reached on M-F 8am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sinh Tran can be reached on 571-272-7564. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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SINH TRAN
SUPERVISORY PATENT EXAMINER